In the Claims:

Claims 1-3 canceled

Claim 4 (previously presented): A process for the removal of hydrogen sulphide and other sour gas components from industrial gases under pressure by means of physical scrubbing agents and for the recovery of sulphur from hydrogen sulphide using a Claus plant, comprising:

- absorptively dissolving the hydrogen sulphide and the other sour gas components in a physically acting scrubbing agent;
- regenerating the physical scrubbing agent in a multi-step regeneration, wherein the multi-step regeneration unit is equipped with at least one device each for CO enrichment, H_2S enrichment, CO_2 stripping and thermal regeneration;
- operating the various regeneration steps at pressure levels that differ from each other and are lower than that of the absorption unit;
- withdrawing a Claus gas rich in hydrogen sulphide from one of the regeneration steps and feeding it to a Claus plant which produces sulphur;
  hydrating the tail gas leaving the Claus plant, wherein
- the Claus gas rich in hydrogen sulphide is withdrawn from the device for thermal regeneration;
- the hydrated tail gas is compressed and fed to the device for CO enrichment;
- a gas stream that is rich in CO_2 , and enriched in CO relative to the hydrated tail gas is taken from a device for CO enrichment; and

- a gas stream that is poor in CO and rich in CO_2 is taken from a device for H_2S enrichment.

Claim 5 (previously presented): The process according to claim 4, wherein a process implemented as physical absorption is based on the Rectisol, Selexol or Morphysorb process.